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Tuberculosis and Mobilization.—Official regulations do not adequately provide for the exclusion of pulmonary tuberculosis from the United States Army. In spite of the remarkable decline in tuberculosis it still remains a serious menace particularly to persons of selective-service age group. The National Tuberculosis Association therefore recommends that orders come from Washington providing for X-ray study of all volunteers and prospective recruits and that induction be postponed until the results of the X-ray examinations are known.—*Tuberculosis and Mobilization, F. T. Lord, New England J. Med., June,* 1941, *224:* 971.—(S. T.)

Chest Examinations of Recruits.—The material used in the preparation of this paper was selected from approximately 10,000 roentgenograms of recruits from the southern half of the Province of Alberta, Canada, reviewed since the beginning of the present war. The recruit of doubtful chest fitness is examined by the clinician, and with his findings and the X-ray film as evidence, the clinician and radiologist weigh the results, and the recruit is classified into one of the following categories: fit for active service, fit for lines of communications, fit for services in Canada only, or, unfit for any service. The examination of the heart and great vessels is described with a view toward discovering congenital defects; hypertensive, arteriosclerotic and aneurysmal lesions; also rheumatic, syphilitic and thyrotoxic disabling conditions. In the examinations for diseases of the lung, advanced lung lesions were not considered, but great importance is attached to the minute active lesion and the so-called healed focus which require study. Recruits with chest shadows suggestive of low-grade infection, probably of upper respiratory origin, or with increased density in the peribronchial and perivascular tissues and also in the hilar regions, or with mottling in the parenchyma of the lungs, seem never to be entirely free from colds, but are always either just recovering from or developing a new cold. Men of this type are subject to breakdown and are considered as unfit, or fit for home service only, with the suggestion that they be reexamined in three to six months. In cases of healed minimal tuberculosis it is difficult to determine whether there is a focus in the lung not entirely healed which may be lighted up under service conditions. Such a lesion occuring within the past four years will rule a man unfit for any service. Cases of pulmonary fibrosis with evidence of sepsis are usually labelled unfit for service; others may be classified as fit for service in Canada. Chronic bronchitis with emphysema usually limits activity, it is aggravated by extremes in climate and renders the recruit unfit for military service. In healed cases of empyema,

unless the recruit has been able to carry on ordinary work for the past four years or more, they are considered as unfit. Lung tumors, benign or malignant, are considered as serious and the recruit is classified as unfit for any service. The radiologists are key men in determining the personnel of the Army, Navy and the Air Force. As a result of an oversight by the radiologist, the recruit may end in a military hospital and become a pensioner for life.—*Observations Gleaned from Clinical and Radiological Chest Examinations of Recruits, W. H. McGuffin, Radiology, April,* 1941, ***36:*** 413.—(*G. F. M.*)

Mass Chest Surveys.—In a report by a special committee of the Board of Chancellors of the American College of Radiology, the subject of group surveys for the recognition of tuberculosis resolved itself into the three following questions: (*1*) should surveys be undertaken (considering the necessity and expense), (*2*) how are such surveys to be made and (*3*) how should they be made. To obtain information on these questions, a recent survey by means of questionnaire among qualified observers made by the Inter-Society Committee for Radiology produced replies from forty states. The Committee found that (*1*) in spite of a fairly widespread feeling that group or mass surveys are more spectacular than useful, they are being made and will continue to be made; (*2*) that surveys are in most part conducted by official bodies employing their own personnel, chiefly using ordinary X-ray films, but that fluoro-photographic methods are being increasingly employed and (*3*) that the committee recommends the plan of the Monmouth, New Jersey County Medical Society, whose tuberculosis committee comprised of radiologists and tuberculosis specialists furnishes interpretations of films made by a survey agency. The committee of the Board further recommends that the College constantly insist on the recognition of the survey as an initial crude diagnostic survey and not as a series of regular diagnoses.—*Mass Surveys, L. S. Goin, Radiology, April, 1941,* ***36:*** *498.*—(*G. F. M.*)

Surveys with Miniature X-ray Films.—In the city-wide case-finding survey made in Detroit from 1938 to 1940, it was found that a considerable proportion of examinations were not completed because of failure of patients to return for reading of the tuberculin test. A sample of 1425 women attending prenatal clinics was given simultaneous X-ray examination and the Pirquet test. Positive reactions were found in 610 women, with 3 having pulmonary tuberculosis. Among the 671 negative reactors, there were 2 cases of pulmonary tuberculosis, and among the 144 women who failed to return for reading of the tuberculin test, 2 cases of advanced tuberculosis were found. Accordingly, it seems wise to omit the tuberculin test and this has proven practical by use of the 4 x 5″ fluorogram. This method has been used in a special study in a housing project. Among the first 4815 persons examined, pulmonary tuberculosis was found in 76 (1.5 per cent).—*Use of Miniature X-ray Films in Tuberculosis Case-Finding, B. H. Douglas, C. C. Birkelo, G. E. Harmon & H. F. Vaughan, Am. J. Pub. Health, December, 1940,* ***30:*** *1427.*—(*H. L. I.*)

Tuberculosis in Canada.—The tuberculosis problem in Canada is difficult and needs vigorous action on the part of all concerned. The problem is outlined and suggestions are made for further improving the usefulness of the campaign. Statistics for the years 1937–1939 show a definite reduction in the total deaths from tuberculosis from 6,650 to 5,972 and a fall in the death rate from 59.9 to 52.8 per 100,000. However there is a great variation in death rates in different provinces. Ontario and the Prairies have a rate of only 34 as compared to 80 for Quebec and the Maritime Provinces, which contribute 56.2 per cent of the total deaths from this disease for the country. It is pointed out that treatment facilities in Ontario and the Prairies are double those in Quebec and Maritimes, but other factors are involved in this wide disparity such as age of population, distribution of wealth and racial distribution. The author attributes most of the fall in tuberculosis death rates to increased sanatorium and public health facilities, there being at present 10,088 available beds in Canada and a very extensive system of tuberculosis clinics throughout the country. These latter stress early diagnosis of all cases

and checking of all contacts. Associated with the clinic service there should be surveys of industrial workers, nurses and hospital employees, inmates of mental hospitals and university students. The author believes that there is a great educational value for the community in surveys of school children, and disagrees with workers who discourage such surveys. As regards treatment, there is a wide variation in different institutions as to the amount and types of treatment given to patients. The author believes that collapse therapy is not overdone at present and that radical measures of to-day will become the conservative ones of tomorrow.—*The Tuberculosis Problem in Canada, G. J. Wherritt, Canad. M. A. J., March, 1941, 44: 295.*—(*W. G. C. M.*)

Tuberculous Infection in Venezuela.—Tuberculosis is one of the most serious public health problems in Venezuela. Available data on mortality are far from complete, but are sufficient to indicate a death rate in urban centres of 321 per 100,000, with extreme values of 210 and 470 in different localities. In certain cities, it causes between 12 and 23 per cent of the general mortality. Systematic examination of groups has demonstrated a significant percentage of active lesions, thus: urban environment, 2.43 per cent; semirural areas 1.52 per cent; rural areas, 1.02 to 2.2 per cent; Indian centres, 0.98 per cent; petroleum industrial areas, 1.51 per cent. In different urban groups, morbidity varies from 1.52 per cent in students up to 3.58 per cent in pregnant women and 5.04 per cent in contacts. The number of lesions found is high in the early years, declines between ten and nineteen years of age, to rise after that point reaching a maximum in those over thirty years of age. In Caracas there are no significant differences between white and colored persons. Tuberculin tests reveal a process of massive infection in the cities, the lowest percentage of positive results up to four years of age being 20 per cent. Up to fourteen years of age the average for all cities rises to 51 per cent. Over fourteen years, the average is 83.2 per cent. In the rate of infection, as in moribidity, no difference between white and colored races was demonstrated in Caracas. Outside the cities, the infection rate descends sharply, thus: semirural areas, 29.5 per cent; rural areas 27.3 per cent; Indian centres, 25.9 per cent; petroleum centres, up to fourteen years, 40.6 per cent, over 14, 75.1 per cent. Bovine tuberculosis is more frequent in barn animals and more so when the stables are located near urban centres. Foreign cattle show higher infection rates than domestic. For example, in the area around Caracas, Holsteins show a rate of 39.34 per cent, domestics, 26.76 per cent. Large areas of the country may be considered practically free of bovine tuberculosis. But propagation of the infection into areas up to recently considered free has begun. Migration of cattle during the dry seasons from infected zones threatens to carry the infection to noninfected areas.—*Indice de tuberculizacion en Venezuela, I. J. Pardo, Rev. san. y asistencia social, April, 1941, 6: 198.*—(*H. B. S.*)

Tuberculosis Mortality in Chile.—This study is based on statistics for the years 1936, 1937 and 1938. Statistical analysis of mortality rates for tuberculosis in Chile over the last twenty years shows no significant change. Mortality statistics for tuberculosis in Chile are shown to be relatively reliable. Deaths from tuberculosis constitute 10 per cent of the total mortality and 47 per cent of the mortality due to contagious disease. In the age group from fifteen to forty-five years, the most active period of life, tuberculosis causes 33 per cent of the general mortality and 75 per cent of that due to contagious disease. If the high infant mortality rate were reduced by improved national hygiene, the problem of tuberculosis would stand out even more prominently than indicated by these figures. Above the age of fourteen years, mortality from tuberculosis is a serious problem. The age distribution of the mortality indicates that Chile is a hyperinfected country where tuberculous infection is acquired at an earlier age than in North America or Europe. Mortality among women is greater than among men, during the period of sexual activity; after that men show a higher rate. The mortality curve with respect to age lies between that for whites and that for Negroes in North America. This could be attributed to differences in degree of acquired

racial resistance. Arguments (not susceptible of scientific proof) against such acquired resistance are: (*1*) absence of evidence of acquired immunity in clinically observed cases, (*2*) failure of development of evidence of group resistance in the highly tuberculized poor districts of European cities, over long periods of time, (*3*) high mortality rates among the Japanese, who are probably the race which has lived longest in the same area, and (*4*) prompt increase in tuberculosis resulting from the hardships of the World War of 1914. If immunity does develop, it is of minor degree. In infectious diseases in general, the severity of the average case tends to decline with time in any given group, but the morbidity rate does not fall unless some artificial means of attacking the infection is at hand, as in typhoid or small-pox. The difference between Chile and North America is attributed to differences in the frequency of opportunity for contact with infected persons. Where there is lower morbidity, it takes longer for the average person to have a sufficient number of chances for exposure to acquire the infection. Chile shows merely the result observed when a white race is confronted with great likelihood of contagion. Lowering of tuberculosis morbidity probably depends on better housing, which decreases exposure, and better nutrition, which increases individual resistance. In Chile, the greater the density of population, the greater is the mortality rate, indicating the importance of the factor of contagion. Climate affects only the seasonal distribution of deaths, a peak tending to occur in the spring. The paradoxically lower rate in industrial areas (27.9) as compared with agricultural areas (37.8) is attributed to better economic conditions. It has been shown that industrialized countries fare better with tuberculosis than agricultural. —*Mortalidad por tuberculosis en Chile, B. Viel, Aparato respir. y tuberc., January–March, 1941, 6: 5.*—(*H. B. S.*)

Survival Rates.—From 15 sanatoria in Minnesota 10,990 persons were discharged from 1926 to 1935; 8,958 persons (81.5 per cent) of these had reinfection type of tuberculosis; 4,550 of this group were between twenty to forty-nine years of age. The survival rates of the latter group for varying intervals were determined (*1*) by the stage of disease on discharge, according to the classification of the National Tuberculosis Association as minimal, moderately advanced and far advanced, (*2*) the condition of sputum on discharge, whether positive or negative, (*3*) type of sanatorium. The survival rates for the period of six years after discharge were: Minimal, negative-sputum group, 96.4 per cent, moderately advanced group, positive sputum, 41.6 per cent, and negative sputum 88.6 per cent; far advanced group, positive sputum, 25.4 per cent, and negative sputum, 79.1 per cent.—*Post-Sanatorium Tuberculosis Survival Rates in Minnesota, H. E. Hilleboe, Pub. Health Rep., April 25, 1941, 56:* 895.—(*G. C. L.*)

Contact Children.—In 1939 in New York City with a population of more than 7,000,000 only 118 persons under ten years of age died of all forms of tuberculosis and 77 of these were less than three years of age. Thus once infancy is past, mortality from tuberculosis in the preadolescent white child is very small. A careful review of the results of contact examinations done the first six months of 1938 in the city tuberculosis clinics brought to light two striking points: (*1*) the reinfection type was almost never seen before ten years of age, (*2*) the great majority of parenchymal lesions of either the primary or reinfection type were picked up on initial roentgen examination and very rarely indeed at later visits. These findings made it seem wise to define contact as exposure to a sputum-positive case within the preceding two years and to eliminate reëxaminations in children between three and ten years of age who showed no evidence of parenchymal involvement. This was done, even though exposure continued. Children exposed to open tuberculosis were all X-rayed initially, but only those under three years of age were tuberculin-tested. Supervision by X-ray and retesting with tuberculin where previous tests had been negative were continued in infants up to the age of three years. Supervision of all children recently exposed or giving a history of heavy exposure in infancy was resumed at age ten and periodic roentgen examination of all such persons is to be continued to age twenty-

five. Application of this regimen of diminished rechecks for children between three and ten years of age has decreased clinic visits by 54 per cent and there appears to be no appreciable decrease in the number of significant cases coming to light. It is pointed out that where no history of exposure is given for the tuberculous child living in a large city, exhaustive efforts to discover a source case within the family often fail; and about 45 per cent of the active cases discovered in children in New York City give no history of contact and are referred to the clinic for reasons other than contact. Such cases would be missed were the program based primarily on the examination of those in exposure.—*Supervision of Children in Contact with Tuberculosis, A. B. Robins, Am. J. Dis. Child., April, 1941, 62: 721.—(M. B.)*

Tuberculosis Infection.—Contagion from tuberculosis among medical workers in sanatoria and general hospitals constitutes a serious and definite hazard. The morbidity rate among the nursing personnel made up of 174 pupil nurses all between eighteen and twenty-one years of age and healthy on admission to training was 9.2 per cent. The likeliest points of contamination were the immediate surroundings of the patients. Tubercle bacilli were cultured from the bed sheets, walls, tables and other objects about the patients. The following prophylactic measures are therefore suggested. All medical personnel in a sanatorium should be over twenty-one years of age. They should receive a sufficient well balanced diet, good living quarters, a month vacation a year and frequent medical and roentgenological examinations. All nurses should wear gauze masks of sufficient thickness. Patients should be instructed to cover their mouths with napkins when coughing. There should be proper disposition of laundry. All dishes should be sterilized. In general hospitals greater attention should be given to the detection of the disease, preferably by routine chest films.—*Tuberculous Infection among Nurses and Medical Students in Sanatoriums and General Hospitals, P. Dufault, New England J. Med., April, 1941, 224: 711.—(S. T.)*

Tuberculosis among Student Nurses.—In order to plan for the prevention of tuberculosis in hospital personnel, an investigation was made of students admitted to the Training School for Nurses at Metropolitan Hospital. This study was started with the class of 1935. Most of the students came from New York City and the average age of the group was 19 years. On admission to the Training School the students had routine physical examination and roentgen examination of the chest. At the same time tuberculin tests were done. During this period 205 student nurses have been under observation. During the three-year training period each student had a roentgenogram of the chest every six months and negative tuberculin reactors were tuberculin tested every three months. When a positive tuberculin reaction was obtained, roentgenograms of the chest were taken at more frequent intervals. Of the 205 students, 85 (41.5 per cent) reacted positively to tuberculin on admission. Since the last class admitted has not been under observation for a sufficient time, the present study includes only 83 students with negative tuberculin tests on admission. Of this number, 67 (80.7 per cent) subsequently had positive tuberculin reactions. Seven (3.4 per cent) of the 205 students developed pulmonary tuberculosis; 2 of these with positive and the other 5 with negative tuberculin reactions at the time when they began training. It has been found that student nurses are equally liable to develop tuberculosis whether or not they work on tuberculosis pavilions. The reason for this is probably that precautionary measures are better observed among known cases of tuberculosis than among unsuspected cases that are always to be found on a general service. The chief barrier to infection is wearing a mask when treating open cases of pulmonary tuberculosis. The occurrence of pulmonary tuberculosis among nurses in tuberculosis hospitals is about ten times as great as among women in other industries.—*Tuberculosis in Student Nurses, G. G. Ornstein & D. Meyerowitz, Quart. Bull. Sea View Hosp., April, 1941, 6: 274.—(A. A. E.)*

Tuberculosis in Mental Hospitals.—The death rate from tuberculosis in institutions for

mental diseases and mental defects in New York State has averaged 614 per 100,000 in recent years, compared to the state average of 51 per 100,000. X-ray examination of 1000 patients at the Binghampton State Hospital revealed 4.7 per cent with previously unrecognized, clinically significant tuberculosis. A more extensive study, at the Willard State Hospital, revealed 9.1 per cent with reinfection tuberculosis, active in more than a third of the cases. Reëxamination twelve to eighteen months later of 2414 patients revealed 15 new cases. On examination of 794 employees, 3.4 per cent had reinfection tuberculosis and 4 new cases were found on reëxamination. In rural Seneca County, New York, in which the Willard State Hospital is located, a total of 81 tuberculous patients were registered at the time the survey was begun. Twenty-three per cent of these were or had been employees of the hospital. A plan for control of tuberculosis in mental hospitals has been drawn up jointly by the Divisions of Tuberculosis and Mental Hygiene of the State Department of Health. All inmates and employees are to be examined fluorographically using 4 x 5 inch films. Facilities for segregation and prophylaxis are to be provided. Employees are to be given periodic examinations at three to six month intervals. Reëxamination of patients is to be made in one year to determine future needs.—*A Tuberculosis Control Program for Institutions in New York State Department of Mental Hygiene, R. E. Plunkett & W. J. Tiffany, Am. J. Pub. Health, August, 1941, 31: 769.*—(*H. L. I.*)

Tuberculosis Control by Public Health Agency.—Without the effort of the majority of the people a successful fight against tuberculosis is not possible. The National Tuberculosis Association was founded thirty-six years ago to promote popular health education, in which it now cooperates with the official public health service. One of its main activities is research work in the field of tuberculosis. Newer tasks which it has undertaken are: aftercare and economic rehabilitation of the arrested tuberculous patients; direction of attention to those groups and ages where the disease is most likely to be found. The National Tuberculosis Association is composed of lay and medical members, the direction being medical.—*Tuberculosis Control from the Point of View of a Voluntary Public Health Agency, K. Emerson, Modern Aspects of the Antituberculosis Program, University of Pennsylvania Bicentennial Conference, Philadelphia, 1941, p. 13.*—(*G. C. L.*)

Eradication of Tuberculosis.—The death rate from tuberculosis for the entire population of the United States for 1940 is expected to be about 45 per 100,000. This is a decrease of 37 per cent in the last ten years and of 61 per cent in the last twenty years. The decline has been the same in the cities as in the whole country. In 1938 the tuberculosis death rate for the white population was 39.0 per 100,000, for the colored 135.2. The mortality of Negroes living in cities is about twice that of Negroes living in rural areas. The mortality is especially high among young Negroes. In the white population the mortality is highest in women in the child-bearing age, in men in the higher age groups. Certain occupations and people under poor socio-economic conditions have a relatively higher mortality rate from tuberculosis. By continuing the efforts of case-finding and providing treatment and after-care for the tuberculous patient tuberculosis can and will be eradicated.—*The Outlook for the Eradication of Tuberculosis, L. I. Dublin, Modern Aspects of the Antituberculosis Program, University of Pennsylvania Bicentennial Conference, Philadelphia, 1941, p. 29.*—(*G. C. L.*)

Tuberculosis Research.—The National Tuberculosis Association has enlisted many of the best scientists in the United States and abroad for its research program. A report is given on the work that has been done and on that in progress. The National Tuberculosis Association has helped *e. g.* with the isolation of the substance from the tubercle bacillus which is responsible for the skin reaction; it has aided with the improvement of X-ray technique and with chemical and physiological studies in relation to tuberculosis.—*The Place of Medical Research in an Antituberculosis Campaign, W. C. White, Modern Aspects of the Antituberculosis Program, University of Pennsylvania*

Bicentennial Conference, Philadelphia, 1941, p. 21.—(G. C. L.)

Tuberculosis in School Children.—The authors summarize the incidence of tuberculosis in 112,000 examinations in the school population of 79 cities and towns of Massachusetts, observed during the course of the so called "Ten Year Program." The diagnosis of tuberculosis was based on the Pirquet tuberculin reaction and X-ray and physical examinations. The diagnosis of primary tuberculosis was based on the demonstration of characteristic roentgenologically demonstrable pulmonary lesions, while the diagnosis of primary pulmonary infiltration as well as tuberculosis of the adult type was based upon the demonstration of the lesion upon repeated X-ray examination. It was found that while one of 4 children reacted to tuberculin only one of 100 had definite lesions of tuberculosis. In males the morbidity rate from tuberculosis ranged from less than 2 per 1000 at the age of five years to 18 per 1000 at the age of fifteen, with an average for all ages of 10.2 years. Among females the tuberculosis rate ranged from 4 per 1000 at the age of five, to 20 at the age of fourteen, with an average of 14.3 for all ages. The morbidity rate from tuberculosis was conspicuously higher at all ages for females than that for males. In both sexes there was noted a decrease in the morbidity rate after the age of fourteen and fifteen years. The morbidity from tuberculosis was largely determined by the rate of childhood tuberculosis, since pulmonary tuberculosis occurred in but 0.5 and 0.8 per 1000 of males and females respectively. Among school children reacting to tuberculin the morbidity rates for tuberculosis were 38 and 53 per 1000 for males and females respectively, in contrast to rates of 10 and 14 per 1000 for males and females respectively noted among the entire school population. In the larger cities the occurrence of tuberculosis was 10 to 20 per cent greater than among those living in communities with a population of less than 20,000. The tuberculosis rate for females was 40 per cent greater than for males. The authors conclude that the greater susceptibility of the female to tuberculosis begins at an age as early as five years. On the average, tuberculous disease, all forms, was noted in one in 97 males and in one in 71 females. Among those who were tuberculin-positive tuberculous disease, all forms, was noted in one in 26 males and in one in 19 females.—*Tuberculosis among Massachusetts School Children, A Report on the Massachusetts Ten Year Program, Part 2. The Incidence of Tuberculous Disease, E. P. Hutchinson & A. S. Pope, Am. J. Hyg., March, 1941, 33: 33.—(J. D. A.)*

Tuberculosis in Children.—This is a critical review of contributions to the literature on various phases of this subject within the past year.—*Tuberculosis in Childhood, D. H. Kelly, J. Pediat., March, 1941, 18: 405.—(M. B.)*

Tuberculosis in Children.—To prevent the transmission of tuberculosis in children's hospitals, the author found it expedient to divide admissions into three groups. One division is for manifest open tuberculosis, one for tuberculin positive or questionably active children and one for tuberculin negative children. Fresh contagion has successfully been avoided by use of this plan. Another problem which has long puzzled those in charge of tuberculous children is the prevention of outbreaks of scarlet fever. By housing the tuberculous group in buildings at a distance from the scarlet fever wards and by quarantining all new admissions for at least six days, no further cases of scarlet fever have occurred on the author's tuberculosis wards.—*Tuberkuloseschutz in Kinderspitälern und Kinderheilstatten, G. Fanconi, Schweiz. med. Wchnschr., May 10, 1941, 71: 602.—(H. M.)*

Primary Tuberculous Infections in Youth.—Under all circumstances tuberculous infection during the first three or four years of life is a disadvantage because of the risk of death from primary tuberculosis and the likelihood of extrapulmonary metastases. These particular risks are less in all other age periods. But considering primary tuberculosis as such, it seems to make no difference whether individuals are infected during the grade-school period or in young adult life. In general, since manifest forms of primary tuberculosis are more frequent in childhood, there is a medical disadvantage in having it younger; but econom-

ically and socially, the occasional manifestly ill primary tuberculosis encountered in young adult life is a more costly problem than that presented by primary tuberculosis in mid-childhood. The risk of developing phthisis has not been shown with certainty to be greater among young persons first infected in childhood than among those first infected in young adult life. Theoretically it seems likely that phthisis occurs more easily if the primary complex is fresh and unhealed than when it is old and calcified. Immunity conferred by the primary infection seems to be mainly an increased specific resistance to exogenous reinfection; it seems to be of little avail against the pathogenic activity of tubercle bacilli already in the body. Since prophylactic work in tuberculosis has resulted in the postponement of primary infection in an increasing number of cases until adult life, it is strongly recommended that children still noninfected at puberty should be vaccinated with BCG as a means of producing the type of immunity conferred by a primary tuberculosis but without the usual risks of natural infection.—*Primary Tuberculous Infections in Young Adult Life and in Childhood with Reference to Their Relative Advantages and Disadvantages, A. Wallgren, Am. J. Dis. Child., March, 1941, **61:** 577.—(M. B.)*

Calcifications and Tuberculin Reaction.—A higher prevalence of calcified pulmonary nodules and tracheobronchial lymph nodes has been observed in Williamson County, Tennessee, than has been reported in other parts of the country. These lesions in a survey in 1937 were observed with equal frequency in reactors and in non-reactors to tuberculin. Additional examinations were made in 1939. Definite calcifications occurred in 45.9 per cent of white children who reacted to tuberculin and in 41.2 per cent of the non-reactors; 573 white children had been tuberculin tested in the two surveys of 1937 and 1939. Reactions of 2 plus to 1.0 mg. OT or stronger had occurred in 77 children in the earlier survey; 7 of these were negative when retested in 1939. Reactions of 1 plus to 1.0 mg. OT had occurred in 158 children in 1937; 77 of these were negative on reëxamination in 1939. Comparison of the X-ray interpretations showed a considerable variation in the two surveys. It was apparent that the accuracy of interpretation was greatly increased when two or more films were available. In only 8 children did there appear to be an addition of calcium during the two year interval. The final diagnosis based on interpretation of serial films classified 65.1 per cent of the children as having calcifications. The percentage was 62.3 in the group who failed to react to tuberculin on both occasions. The authors conclude that if these calcified lesions are tuberculous in origin, they indicate an appreciably higher level of tuberculous infection in this area than would be shown by the use of the tuberculin test alone.—*Tuberculosis Infection in Relation to Tuberculin Sensitivity in School Children, Roentgenological Evidence—Second Report, R. S. Gass, W. J. Murphy, E. F. Harrison, R. R. Puffer & W. C. Williams, Am. J. Pub. Health, September, 1941, **31:** 951.—(H. L. I.)*

Early Lesions.—By X-ray examination pulmonary lesions are discovered before they produce symptoms and signs. At that time they usually are single, confined to one lung, their diameter being up to 2 or 3 cm. Sometimes, the first tuberculous manifestation is pleurisy with effusion; very rarely, erythema nodosum. The early development is not always slow, especially in young individuals, and roentgenograms should therefore be made once or twice a week. In untreated cases, caseation and ulceration are frequent. Prompt treatment, consisting in bed-rest for three to six months, is therefore indicated. If the disease progresses in spite of bed-rest, pneumothorax has to be induced.—*Evaluation of the Early Lesion in the Clinical Approach to the Control of Tuberculosis, J. B. Amberson, Jr., Modern Aspects of the Antituberculosis Program, University of Pennsylvania Bicentennial Conference, Philadelphia, 1941, p. 1.—(G. C. L.)*

Healing by Absorption.—Complete absorption of pulmonary tuberculosis is much more likely to occur if minimal disease is discovered early. A report is given on 30 such cases in which this ideal result was obtained after an

early diagnosis was made with the aid of certain diagnostic procedures. A good history should consider family and environmental factors, past diseases which might be tuberculous and a complete inquiry into the onset of any present symptoms. Cough or frequent throat clearing should not be ignored and fatigue is too often overlooked by the patient. Physical examination should endeavour to elicit râles and sputum should be examined for tubercle bacilli. Tuberculin skin-testing is of value up to thirty years of age and serology is of early value when the tuberculo-complement-fixation and Caulfeild's inhibitive reaction are used. Serologically-positive contacts should be X-rayed every three to six months since the author believes that active tuberculosis may be anticipated by the proper use of both tests. Thirty cases of pulmonary tuberculosis are reviewed in whom complete resolution of the disease occurred and in 29 of these the factors initiating the search for the disease were clinical. Diagnosis was completed in 7 cases by finding positive sputum and in 23, by X-ray, physical examination and symptoms. Serological tests were not used to complete or confirm diagnosis in any cases. Ten cases had clear X-ray films six to twelve months prior to finding a lesion and 5 others were clear one to four years previously. In all cases the ultimate result after treatment, averaging fifteen to sixteen months, was complete absorption of the lesions as seen by X-ray. Treatment consisted of bed-rest for one to three years with no visitors at first, bathroom privileges once daily and a carefully balanced diet. Sanatorium treatment is advised rather than treatment at home.—*The Ideal Result in Pulmonary Tuberculosis, W. Ogden, Canad. M. A. J., July, 1941, 45: 10.*—(*W. G. C. M.*)

Residual Lesions of Lung.—A study of 813 students in the faculties of agriculture, medicine, and veterinary medicine with teleoroentgenograms and tuberculin tests was made. When the Pirquet reaction was negative, the Mantoux test with concentrations up to 1:10 was done. In interpreting X-rays, certain anomalies in hilar and bronchovascular markings, which are considered by some the results of tuberculous infection, were regarded merely as variants of the normal picture. Negative skin reactions were found in 158 students. Of these 15 showed positive X-ray findings, namely, diaphragmatic pleurisy (8), apical pleurisy (2), juxta-hilar densities (1), diffuse change in the stroma (1), and solitary calcified nodule (4). Only the last can be declared tuberculous with certainty. When films are taken in only one projection, an appearance exactly simulating such a nodule may be presented by a vascular macula. The greater percentage of positive X-ray findings in non-allergic subjects reported by other authors may be due either to differences in material studied, differences in the method of tuberculin testing, or errors in X-ray interpretation. It is undoubtedly true that the majority of persons who completely overcome a tuberculous infection and develop negative skin reactions do not have lesions detectable by X-ray. Six hundred fifty-five students showed positive skin reactions. Of these 40 per cent showed residual lesions by X-ray. Twenty-one per cent of these were hilar calcifications, 11 per cent diaphragmatic pleurisy and 10 per cent calcified primary foci. In the students in their last two years at school, residual lesions were more severe and complex than those found in students applying for admission. This is attributed partly to the higher average age of the former group and partly to the repeated exposures to infection resulting from city life as well as from the nature of their studies.—*Las imágenes pulmonares residuales en los jóvenes sanos, R. F. Vaccarezza & B. Enquin, An. de la catedra de patol. y clin. de la tuberc., December, 1940, No. 2: 401.*—(*H. B. S.*)

Prognosis of Cavernous Phthisis without Collapse Therapy.—The purpose of the present work is, from a non-selected material of conservatively treated cases of pulmonary tuberculosis with cavity formation, to elucidate the significance of various prognostic factors and their mutual correlation with a special view to comparative prognostic studies. The material comprises 695 conservatively treated cases. In all but 4 of these cases thorough information has been obtained about their fate after at least six years (including X-ray examination of the living). The extension of the tuberculous

process is found to be of very great prognostic significance. In the milder cases it is further of great prognostic importance whether the cases roentgenologically and anamnestically are preponderantly recent or chronic. In recent cases with limited extension of the process (unilateral and slight and moderate bilateral) the extension, density of infiltration and size of cavity are all factors of great prognostic significance. Among slight cases with a cavity measuring up to 2.5 cm. in diameter 63 per cent of the patients got well. On the other hand, the location of the cavity means but little. The temperature is significant in particular after observation for a couple of months. As to the roentgenological course it is worth mention that the prognosis appears not to be worse because the state of the roentgenographic changes keeps unchanged for a couple of months. In the preponderantly chronic cases, within fairly wide limits, the extent of the process means but little to the prognosis. In such cases more importance is to be attached to the presence of retraction (which betters the prognosis), size of cavity, location of cavity (better prognosis for apical cavities) and the quality of the infiltration, the prognosis being better the more the cases approach the fibrocavernous phthisis. Even among "good chronics," however, the percentage of patients getting well under conservative treatment will hardly exceed 20 per cent. In extensive bilateral pulmonary tuberculosis and in bilateral cavitation patients who get permanently well appear to be rare and almost accidental exceptions. In this group 3 per cent got well, while nearly 90 per cent died within six years. Sex and age have no influence on the prognosis *quoad sanationem*, whereas the mortality in the milder cases is considerably lower for men than for women. Sanocrysin therapy, employed in about one third of the cases, may possibly have improved the prognosis a little for recent cases with particularly dense or very extensive infiltration, but in milder cases and in preponderantly chronic cases there is not found any therapeutic effect whatever from the sanocrysin treatment.—*Prognosis of Cavernous Phthisis without Collapse Therapy. Investigation of the Late Results in 700 Conservatively Treated Patients, a Part of Whom Were Given Sanocrysin Therapy, S. Cold, Acta tuberc. Scandinav., 1941, 15: 159.*—(*G. C. L.*)

Tuberculosis and Pregnancy.—The author has treated a series of patients in whom pregnancy had progressed too far for abortion or in which abortion was refused by the patient. Cases with cavities are vigorously treated no matter how far pregnancy has progressed. Pneumothorax and pneumonolysis are carried out with the same safety as in the average case and are equally well tolerated. When pneumothorax is impossible and large cavities exist, the author has successfully employed Monaldi suction drainage. In cases so treated spreads following delivery have not been seen, even if the sputum was still positive at the time of delivery and the cavities not completely closed as yet. In favorable cases the cure continues favorably after delivery.—*Aktive Tuberkulose und Schwangerschaft, M. Weber, München. med. Wchnschr., April 18, 1941, 88: 463.*—(*H. M.*)

Compensation in Tuberculosis.—The author discusses the question of compensation of pulmonary tuberculosis. He believes that it is difficult to settle the question of endogenous reinfection or exogenous reinfection in the majority of cases where the question of compensation arises. He believes that endogenous reinfection is stimulated by exogenous factors, such as overwork, poor living conditions, poor general health, and also new exposure to tubercle bacilli or their products. Where there is evidence of a tuberculous condition developing during the period of military service, the author is of the opinion that such cases should receive compensation. He argues that if tuberculosis was present prior to enlistment, it was the responsibility of the examining military surgeon to discover it. If it was not present or of such a minimal degree as to escape detection by examination, the draftee has most certainly developed it during his period of service.—*Die "exogen stimulierte endogene Reinfektion" der Tuberkulose in der Begutachtung, S. Gräff, München. med. Wchnschr., March 21, 1941, 88: 324.*—(*H. M.*)

Haematogenous Tuberculosis of Lung.—To determine the types of pulmonary tuberculosis produced by haematogenous dissemination, 467 cases of extrapulmonary tuberculosis were analyzed as to their pulmonary picture. About 37 per cent (174 cases) had no residua in the lungs other than calcified primary complexes. Of the remaining 293 cases, 14 showed Simon's foci, 50 early disseminated lesions, 27 late disseminations (discrete miliary tuberculosis), 60 patients showed various intermediate forms with or without cavity. The cavities are usually round, thin walled and located in the upper lobes. Forty patients had pleurisy with effusion or adhesive pleuritis, 21 had miliary tuberculosis, and 14 advanced fibrosis. Subjective symptoms of pulmonary tuberculosis were often lacking or slight. Physical findings and laboratory data were as conclusive as in isolated non-haematogenous tuberculosis. Sputum was positive in cavitary cases. Sedimentation time was usually accelerated, and the blood count showed a shift to the left. Tuberculin reaction is positive, but the Meinicke tuberculosis reaction may be negative. The collapse therapy of these cases is as favorable as in the non-haematogenous cases. The tendency to fluid formation with pneumothorax is somewhat higher. In the presence of obliterative pleuritis, the cavities are well suited for Monaldi drainage because of their thin walls.—*Ersterscheinungsformen der hämatogenen Lungentuberkulose, St. J. Leitner, Schweiz. med. Wchnschr., May 10, 1941, 71: 612.*—(*H. M.*)

Tuberculosis of Lymph Nodes and Lungs.—The case histories of 5 children in whom the tuberculous infection ran an unusual course are reported. All showed for a long period tuberculosis of the cervical lymph nodes with only minor pulmonary tuberculosis. In both locations the pathological processes became progressive, more or less acutely. All died with caseous pneumonia. The unusual course of the disease was probably not due to a peculiarity of the tubercle bacillus but due to low resistance of the patients, of whom 4 were at puberty age and 2 showed signs of constitutional inferiority. The lymph node tuberculosis had probably originated by a haematogenous spread from an intrathoracic node of the primary complex.—*Über progredient verlaufende periphere Lymphknotentuberkulose in Verbindung mit Lungentuberkulose, H. Brügger, Ztschr. f. Tuberk., February, 1941, 86: 1.*—(*G. C. L.*)

Tuberculosis in Schizophrenics following Metrazol Therapy.—That schizophrenic patients who have been in institutions for many years develop tuberculous lesions is not a new observation. However, the incidence of tuberculosis appears to be much higher in our patients after treatment with metrazol. Several authorities have considered the possibility that cardiazol injections might have activated a latent pulmonary tuberculosis. Read, in a comprehensive survey of the consequences of metrazol, stressed the occurrence of pulmonary tuberculosis following metrazol treatment. On careful reëxamination of a group of 277 schizophrenic patients of the Elgin State Hospital who had been previously treated with metrazol, as well as a comparable non-treated group, it was found that 25 or 8.3 per cent of the patients treated with metrazol developed pulmonary tuberculosis, as compared with 3 per cent not so treated. The higher percentage is even more significant because of the fact that patients considered poor risks were seldom treated. In 9 of these the onset was acute occurring during treatment or within four months of the institution of metrazol therapy and in some the infection was so severe as to simulate the picture of lobar pneumonia. Most of these are believed to be due directly to the metrazol therapy. It was concluded, therefore, that metrazol should be given in the presence of active pulmonary tuberculosis only when all the risks have been considered and when the mental condition is seriously influencing the physical condition of the individual. It is further suggested that careful pulmonary examination, including roentgenological studies, is indicated before the institution of therapy and that all patients should be fluoroscoped at three months' intervals following therapy for at least two years.—*Incidence of Pulmonary Tuberculosis following Metrazol Convulsive Therapy, G. G. Bulley & B. L. Greene, Am. J. M. Sc., April, 1941, 829: 504.*—(*G. F. M.*)

Anaesthetics in Tuberculosis of Lung.—A small percentage of patients with pulmonary tuberculosis develop a spread of the disease following surgical operations. The authors believe that surgical shock is a principal cause of such extensions of the tuberculous disease and that various precautionary measures should be taken. The selection of the anaesthetic depends on the type of surgery to be performed as well as on the site of operation. Local anaesthetics may be used in minor operations, such as intrapleural pneumonolysis, and pentothal sodium intravenously is suggested for operations on ischiorectal abscesses. Spinal anaesthesia is used for major operations below the diaphragm, while cyclopropane is preferred for those of the thorax. Of 118 major chest operations, using cyclopropane, there were 5 patients with spread of the disease within three months and 3 postoperative deaths. Of 20 operations in which spinal anaesthesia was used, there were 2 spreads and 2 deaths. It was noted that 71 per cent of the total series had positive sputum at the time of operation. An analysis of 75 minor operations showed one death which was in a case of terminal tuberculosis. The preoperative preparation of the patient consists of bed-rest for acute exudative disease until surgery is possible; drainage of bronchial secretions, intravenous infusions and preoperative sedatives directly before operation. Multiple stage thoracoplasties produce fewer cases of shock and spread of disease, according to the authors. Thus the choice of anaesthesia, preoperative and postoperative care, are all directed towards lessening the possibility of shock.—*Anaesthesia in the Patient with Pulmonary Tuberculosis, H. E. Pugsley & G. D. Richardson, Canad. M. A. J., May, 1941, 44: 473.*—(*W. G. C. M.*)

Pernicious Anaemia and Tuberculosis of Lung.—This is a report of a case of pernicious anaemia occurring in a patient with chronic pulmonary tuberculosis. The patient was a man of fifty-one in whom the diagnosis of cavitary tuberculosis was made following the exacerbation of a chronic cough. The sputum contained tubercle bacilli. His general health remained quite good until several months after the diagnosis when he lost weight rapidly, and it was noted that he became extremely pale. Physical examination on admission to the hospital revealed a smooth tongue and abnormal chest findings. The patient was very emaciated and pale. Red cells were 1.05 million, the color index was 1.70. There was anisocytosis and poikilocytosis. White cells numbered 3,750, with 72 per cent polynuclears. The differential red count showed 2 per cent megaloblasts, 7 per cent normoblasts and 2 per cent transitional forms. The stools contained blood, but the intestinal tract was thoroughly investigated and was found negative, except for a spastic colon. Temperature was normal throughout the hospital stay. Under liver treatment, there was a prompt rise in the red cell count, and megaloblasts disappeared from the circulation. The color index diminished and the white count rose. Eosinophiles rose to 6 per cent. Transitional forms never numbered more than 4 per cent. During the period of observation, the pulmonary picture appeared stationary and the general condition of the patient improved.—*Anémie pernicieuse chez un tuberculeux pulmonaire, R. Desmeules & Ph. Richard, Laval méd., September, 1941, 6: 307.*—(*H. M.*)

Tuberculosis of Bronchi.—Until recently tuberculosis of the bronchi was not considered to be of clinical importance as it was supposed to be only a disease concomitant with pulmonary tuberculosis. However, the properties of the draining bronchus often are of extreme significance for the further development of the cavity. Moreover, in the last few years it has been found that cases with predominantly bronchial involvement are not so rare. Tuberculosis of bronchi occurs more often in the female than in the male, and especially frequently with pulmonary foci in the upper part of the right lung and in the middle and lower part of the left lung. Symptoms and signs are irritative cough, dyspnoea, wheezing, positive sputum, streaking; the minor pulmonary findings do not explain the positive sputum. Roentgenologically atelectasis is found in the region of the diseased bronchus. On tomograms the pathological bronchus can often be seen. Bronchoscopy is usually not necessary to confirm the diagnosis. The prognosis is

dubious. Systemic and climatic treatment are of importance. Local treatment through the bronchoscope has been recommended by some authors, others deny its value. Collapse therapy often brings about a massive atelectasis with unfavorable results. The case histories of 13 patients with bronchial tuberculosis are discussed and their X-ray pictures are reproduced.—*Die Tuberkulose der Bronchien, ihre Symptomatik, Diagnose und Therapie, A. Schuberth, Ztschr. f. Tuberk., April, 1941, 86: 123.*—(*G. C. L.*)

Radiation Therapy in Tuberculosis of Bronchi.—Bronchoscopy in 105 cases of pulmonary tuberculosis with symptoms suggestive of bronchial disease, showed gross lesions in almost 25 per cent. Shallow ulcerations and discrete tubercles about bronchial orifices draining areas of active disease represent the most common finding. These lesions are probably incidental and will heal spontaneously if the parenchymal disease is retrogressive. Next most frequent are healed lesions frequently causing more or less fibrotic stenosis of the bronchus. These cases often present a recurrent problem; dilatation and aspiration may give excellent but temporary results. Lobectomy and pneumonectomy have been recommended in selected cases. The most serious, but least frequent cases, are those with widespread involvement of the mucous membrane; there is extensive oedema, exuberant granulation and often extensive fungating ulceration. Women, particularly young women, appear to be involved almost exclusively. In these cases, bronchial obstruction may be fatal if not relieved. Bronchoscopic aspiration gives but transient relief. Cauterization may be of some benefit in controlling exuberant granulations. Ten cases of the fulminating type are reported. The grave symptoms in all, and death in two, are attributed to obstruction, complete or partial, of the bronchus with retained secretions. Radiation therapy was tried in 7 of these patients. The irradiation was given in courses of 6 to 8 weekly treatments, alternating front and back. The physical factors were 200 kv., 50 cm., skin-target distance, with a total of 840–1120 r filtered through 2.0 mm. of copper. The portal chosen was centered over the location of the involved bronchus for an area of 15 square cm. One patient died with clinical symptoms and postmortem evidence of complete obstruction. Six cases have been followed through the acute congestive stages without developing complete obstruction. All are improved. None is completely well. The principal purpose of radiotherapy in these cases is the prevention of complete obstruction. Therapeutic triumphs are not expected. The patient's general resistance will, as always, be the ultimate factor in the outcome.—*Tuberculous Tracheobronchitis, L. F. Davenport, Am. J. Roentgenol., April, 1941, 45: 494.*—(*W. H. M.*)

Tuberculosis of Mediastinum.—The most common form of tuberculosis of the mediastinum is tuberculosis of the tracheobronchial lymph nodes. Other forms are cold abscess of the mediastinum secondary to disease of the vertebral column, sternum or lymph nodes and chronic fibrous mediastinitis. There is nothing characteristic about the symptoms or signs. Fever, loss of weight and other constitutional symptoms of infection are common. When physical signs are present and the process is in the anterior mediastinum, an increase in retromanubrial dulness and the signs of the innominate vein or superior vena cava obstruction are the most important; occasionally there may be bulging of the chest wall or sinus formation. When the process is localized in the posterior mediastinum, dysphagia and cough are caused by compression of the oesophagus and irritation of the trachea. The important roentgen findings are widening of the mediastinal shadow, usually a bilateral bulging of the abscess and deviation of the trachea to the side of the greater involvement. When there is calcification of the enlarged lymph nodes, the diagnosis is somewhat simplified. There may be no pulmonary involvement.—*Tuberculosis of the Mediastinum, C. S. Keefer, Am. J. Roentgenol., April, 1941, 45: 489.*—(*W. H. M.*)

Tuberculosis of Tongue.—This study is based on 200 consecutive autopsies at Sea View Hospital from October 1939 to February 1941. During that period gross and micro-

scopical examinations were made of the tongues of 141 cases. Twenty-eight of this number showed definite tuberculous lesions of the tongue. In addition to this number of tuberculous tongues, 35 other cases in earlier years have been studied. The incidence of tuberculosis of the tongue in the 141 autopsy cases studied was 19.9 per cent. Of the total group of 63 cases, 52 were male and 11 were female. Sixty-two per cent of the cases were between 20 and 39 years of age. The base of the tongue was the most common site for tuberculous lesions, which appeared on the base in 87.3 per cent of the cases. Ulcerative lesions were the most common manifestations of tuberculosis of the tongue. Longitudinal fissures of variable lengths were frequently found. Other lesions that were less frequently found were granulomata, solitary tuberculomata and diffuse glossitis. In 83 per cent of the 63 cases of tuberculosis of the tongue, tuberculous laryngitis was also found. This frequent association of lingual and laryngeal tuberculosis suggests that the involvement of the tongue is brought about by direct extension of the tuberculosis of the larynx. Eighty-nine per cent of the cases had sputum which contained tubercle bacilli and most of these had sputum with high Gaffky counts. In 80 per cent there was associated caseous pneumonic pulmonary tuberculosis, usually far advanced. The symptoms of lingual tuberculosis were found to be unreliable in diagnosis; pain and dysphagia, the most common symptoms, were late manifestations of the disease. The methods of infection of the tongue in these cases were direct inoculation by tubercle bacilli from positive sputum, extension of an infection from neighboring structures, and hematogenous infection. However, only about 10 per cent were thought to be hematogenous in origin. The diagnosis depends upon histological examination of excised tissue since the appearance of the lesions and the symptoms are very similar to those which occur with syphilis, neoplasm and actinomycosis.—*Tuberculosis of the Tongue, H. L. Katz, Quart. Bull. Sea View Hosp., April, 1941, 6: 239.*—(*A. A. E.*)

Tuberculosis of Larynx.—The author discusses diagnosis and treatment of laryngeal, oral, aural and tracheobronchial tuberculosis, reviewing the literature and his own experience. The incidence of laryngeal tuberculosis is diminishing, due, probably, to the increasing use of collapse therapy. Symptoms may appear relatively late; they are pain, soreness, hoarseness; in more advanced stages: aphonia, dysphagia, dyspnoea, tickling cough, dryness. Signs on laryngoscopic examination are infiltration, oedema, erosion, ulceration. The cords are most frequently involved first. Laryngeal tuberculosis occurs most frequently between the ages of eighteen and thirty-five. Less than 5 per cent of patients with minimal pulmonary disease develop laryngeal tuberculosis, less than 10 per cent of patients with moderately advanced tuberculosis, and about 20 per cent of patients with far advanced pulmonary tuberculosis. Laryngeal tuberculosis is usually caused by surface infection in bronchogenic pulmonary tuberculosis, and it is relatively rarely due to a haemotogenous spread. The prognosis of the laryngeal lesion depends mostly on the pulmonary lesion. The prognosis of tuberculosis of the epiglottis is no longer as bad as it used to be. Among the therapeutic measures electrocautery seems to be the most effective. Light therapy has proven less valuable. Voice rest is of importance. Oral tuberculosis occurs much more seldom than laryngeal tuberculosis. It is always secondary to pulmonary tuberculosis and the prognosis is good. Therapeutic measures are electrocautery, light and application of silver nitrate. Symptoms of tuberculous otitis media are stuffiness and discomfort in the ear, pain, impairment of hearing, tinnitus. The drum usually ruptures spontaneously. The prognosis is good. The therapy consists in cleansing with antiseptic solutions. Symptoms and signs of tuberculosis of trachea and bronchi are wheezing, rhonchi, dyspnoea, cough, attacks of fever, variation in the daily amount of sputum, positive sputum which is not explained by the pulmonary findings. Therapeutic measures are high frequency current, galvanic current, ultraviolet rays, silver nitrate. Laryngeal tuberculosis is very rare in cases of tracheobronchial tuberculosis.—*Diagnosis and Treatment of Tuberculosis of the Larynx and Contiguous Areas, G. E.*

Wilson, Arch. Otolaryng., February, 1941, 33: 145.—(*G. C. L.*)

Tuberculosis of Intestines.—In 70 out of 99 consecutive autopsies of patients dying of pulmonary tuberculosis, intestinal tuberculosis was found. The average age at death of patients with intestinal tuberculosis was 35.2 years as compared with 42.6 years for patients without intestinal involvement. To determine the incidence of disease during life, 226 patients were examined by Brown and Sampson's method, with interesting results, though the patients were predominantly advanced cases. It was found that 31.4 per cent had intestinal tuberculosis, 58 per cent had no disease and the remainder were classed as "doubtful." About 50 per cent of those with active far advanced pulmonary disease showed intestinal involvement, while only one of 19 moderately advanced cases showed definite evidence of intestinal ulceration. No disease was found in quiescent pulmonary cases. Autopsy findings on 18 of the series showed disease in 9 out of 12 cases previously diagnosed as having intestinal disease. Five cases had no X-ray or autopsy evidence, while one had a single small ulcer but no X-ray diagnosis had been made. Symptoms referable to the intestinal tract were present in only 41 of the 71 cases with evidence of disease, while 30 of the 131 with no X-ray evidence had symptoms ranging from vague abdominal discomfort to diarrhoea. Abdominal cramps and diarrhoea alternating with constipation are symptoms suggesting intestinal tuberculosis. Physical examination yields little of worth but loss of weight and fever, in cases of pulmonary disease which are progressing favourably, are valuable guides. Many of the patients had positive sputum over a period of years and in many the diet was inadequate prior to admission to hospital. Since 1938 patients in the hospital with positive sputum and advanced pulmonary disease have been given additional vitamins in tomato juice and cod liver oil, with the result that there has been a marked decrease in patients with intestinal symptoms and there has been a more rapid gain in weight.—*Intestinal Tuberculosis, H. E. Burke & M. Aronovitch, Canad. M. A. J., July, 1941, 45: 21.*—(*W. G. C. M.*)

Tuberculosis of Intestines.—A comprehensive study of 120 cases of intestinal tuberculosis admitted to hospital between 1935 and 1940 was made with special reference to diets and their effect on weight gain. The authors also review the work of various other workers and have accepted the widely used treatments prescribed by Brown, McConkey, Chan *et al.*, but have prepared special diets which they believe are of great value in improving the weight of patients with ulcerative tuberculosis. Of their series, 95 per cent had far advanced pulmonary tuberculosis and all but one had positive sputum. Diagnosis was made by X-ray, using the methods of Brown and Sampson. There were 61 deaths, 22 of these in from three days to four months following transfer to the intestinal service, and all of these latter cases had active and progressive pulmonary disease. Of the remaining deaths the authors feel that the intestinal lesions were not a major factor in 15, and there was definite improvement of the lesions as seen by X-ray in 10 of these. The condition of the remaining patients of the series is as follows: 59 alive, of whom 39 are either discharged or need no further treatment for intestinal lesions. Of the remaining 20 cases still under treatment 14 show X-ray improvement. In 1935, when the study was begun, intestinal cases were given a modified general diet which was continued after the new intestinal service was created. Apparently due to stricter individual attention, a weight gain was noted for three to ten months, whereas there had been a weight loss previously in spite of the fact that most patients exhibited a stationary or extending pulmonary lesion at the time of transfer. Supervision of the eating habits of the patients thus yielded good results. A low-residue diet was also used and is described in detail, while a modification is used with excellent results in cases with definite symptoms such as nausea, loose stools, colic, and pain after or before meals. The modifications in this latter diet are no vegetables and pablum is used as breakfast cereal, for the other meals and at night. It was later found that the special diet produced better results on the whole than the bland diet and a detailed report of alternate use of these diets, with careful determination of

caloric values, showed an average gain in weight of 0.34 pounds in one month for the low-residue diet as compared with a gain of 1.2 pounds for the special diet. The authors recommend that the special diet be used in all cases of intestinal tuberculosis, except where the intestinal lesions need no treatment or in cases with a progressive spread of pulmonary disease at the onset of the intestinal disease. As is the case in many other tuberculosis hospitals, the patients are also given three ounces of tomato juice and one-half ounce of cod liver oil per day.—*The Dietary Management of Intestinal Tuberculosis, A. S. Kennedy, Olive Snider, J. S. Hazen & C. McLean, Canad. M. A. J., April, 1941, 44: 380.*—(*W. G. C. M.*)

Tuberculosis of Caecum.—Thirty-eight cases of tuberculosis of the caecum drawn from the wards of a general hospital and hence representative of the problem as seen in the community are reviewed. Contrary to the general impression 19 of the 38 cases failed to show either clinical or roentgenological evidence of tuberculosis in the lungs. Another point of interest may be found in the relatively normal blood picture despite marked cachexia. Where the diagnosis cannot be made exploration of the abdomen is indicated. Extensive surgery should however not be undertaken, for the best results are obtained with a sanatorium regimen even after exploration. Surgical intervention is used only to relieve an acute obstruction or to remove the obstructive sequelae of an arrested infection.—*Tuberculosis of the Caecum, R. A. Adams & L. J. Parsons, New England J. Med., February, 1941, 224: 315.*—(*S. T.*)

Tuberculosis of Bile Ducts.—Forty-five cases of bile duct tuberculosis have been studied. This number occurred among 1500 patients in whom autopsy was performed, an incidence of 3 per cent. The most common findings are cavities scattered throughout the liver, varying in size from 1 to 20 mm. in diameter and containing greenish necrotic material which may be very thick or quite thin in consistency. The walls of the cavities are from 1 to 2 mm. thick. Microscopically in the inner wall of the cavity there may be seen caseous material, lymphocytes and occasionally polymorphonuclear leucocytes. Beyond this zone of caseation the capsule consists of collagen fibers, epithelioid cells, fibroblasts and occasional giant cells. In addition to these abscesses miliary tubercles were found in the liver in all but 3 cases. In most cases the liver is of average size and weight. General systemic infection characterized by tuberculosis with early generalization or chronic haematogenous tuberculosis were found in these cases of tuberculosis of the bile ducts. Only 3 of the patients had clinical jaundice before death but each of these had tuberculous peritonitis. In most of the cases the hepatic involvement was asymptomatic. All but 4 of the cases had associated tuberculous ulcerations of the intestines, tuberculous peritonitis or caseous mesenteric lymph nodes. The infection probably arises from the entrance of tubercle bacilli into the bile capillaries at their points of origin in the liver lobule.—*Bile Duct Tuberculosis, Margaret Stemmerman, Quart. Bull. Sea View Hosp., April, 1941, 6: 316.*—(*A. A. E.*)

Tuberculosis of Heart.—The majority of lesions of the myocardium found at autopsy in patients dying of pulmonary tuberculosis are of a nonspecific nature. The various forms of parenchymatous degeneration are usually attributed to the chronic sepsis, the debilitated state, poor nutrition, etc. However, specific lesions of the myocardium have occasionally been described. One form of specific myocardial tuberculosis is caused by miliary dissemination and does not differ essentially from miliary tuberculosis of other organs. A solitary tuberculous focus has been found on occasion, and is due to direct extension of tuberculosis of mediastinal lymph nodes. There is also a form of diffuse myocardial tuberculosis with tubercles containing giant cells distributed in a perivascular fashion. In these cases the differential diagnosis of Besnier-Boeck-Schaumann's disease must be considered. The author contributes a fourth variety of myocardial tuberculosis, namely a tuberculous phlebitis of the myocardial venous channels. This is the first case of its kind reported in the literature. The patient died of cardiac failure which was not amenable to any kind of therapy. At autopsy a typical phlebitis was found, and the

perivenous tissues contained characteristic lesions with many acid fast bacilli.—*La tuberculose du coeur, la phlébite tuberculeuse du myocarde, P. Alphonse, Schweiz. med. Wchnschr., July 26, 1941, 74: 882.*—(*H. M.*)

Tuberculosis of Heart.—A comprehensive review of the literature on the subject is presented, dealing with the aetiology, pathology, symptomatology, clinical features, differential diagnosis, course, prognosis and treatment. Particular stress is laid on the association of the condition with Pick's disease and poliserositis (Concato's disease). The author concludes that involvement of the pericardium by a contiguous or neighboring tuberculosis is not as rare as is generally supposed. Most instances of tuberculosis of the pericardium are due to a retrograde extension of the infection through the lymphatic channels from a mediastinal focus. The myocardium and endocardium are rarely involved in tuberculosis. If the pericarditis is extensive and particularly if there is an associated mediastinitis, the resulting fibrosis may greatly hamper the right auricle and the great veins, particularly the inferior vena cava, so that the return of blood to the heart is partially obstructed. This results in congestion of the liver which becomes chronic and causes recurrent ascites. This condition is called chronic mediastino-pericarditic pseudocirrhosis of the liver, or Pick's disease.—*Tuberculosis of the Pericardium and Heart, H. Hannesson, Tubercle, April, 1941, 22: 79.*—(*E. H. R.*)

Tuberculous Polyarthritis.—The authors present evidence for the occurrence of a mild type of tuberculous arthritis which is called nondestructive tuberculous arthritis. The lesions occur by haematogenous spread. To prove the diagnosis, tubercles must be demonstrated pathologically. The authors deny the existence of tuberculous arthritis without the typical pathological picture which, it has been claimed, is caused by toxins. A case of nondestructive tuberculous polyarthritis with operative intervention and pathological material is presented.—*Nondestructive Tuberculous Polyarthritis versus Tuberculous Rheumatism* (*Poncet*), *D. Kling & M. Levine, Arch. Surg., May, 1941, 42: 956.*—(*H. M.*)

Bone and Joint Tuberculosis.—A review of a large series of verified bone and joint tuberculosis has impressed us with the unusual and varied roentgen findings. In many instances the roentgenographic appearance of the lesion has been so at variance with the criteria commonly accepted as evidence of bone and joint tuberculosis that it is our opinion that a roentgen diagnosis is not only difficult but in many instances inconclusive. A knowledge of the clinical course and general condition of the patient is indispensable in arriving at an accurate interpretation, and frequently histological studies are the only means of reaching a positive diagnosis. Two hundred cases were analyzed, chosen at random from the pediatric and adult services of Sea View Hospital. Each group consisted of 100 cases. All patients up to sixteen years of age were included in the pediatric group. Seventy per cent of this group were less than ten years old. All patients of sixteen and over were included in the adult group. The oldest patient in this group was seventy years of age. Seventy-seven per cent of the adult cases occurred between the ages of sixteen and forty-five, and this percentage was approximately the same for both sexes. In this series, bone and joint tuberculosis occurred somewhat oftener in the female than the male child and was half again as frequent in the male as in the female adult. The incidence was slightly higher in colored male children than in white male children and much higher in white female children than in colored female children. Colored adults, both male and female, showed a slight predominance in the number of cases over white adults. The prevailing ratio of male to female patients and of colored and white patients in the institution was taken into consideration. The spinal column was involved to a much greater extent than any other area. This was true both in the pediatric and in the adult group. The frequency with which weight-bearing areas were involved in the adult group, in contradistinction to the infrequency of non-weight-bearing areas and the high incidence of small tubular bone disease in the pediatric group,

as compared to its marked infrequency in the adult group, are discussed. The influence of trauma on latent foci in the adult group and the immediate effects of an early postprimary haematogenous dissemination in the pediatric group are suggested as possible explanations for these findings. The upper dorsal spine was much more frequently involved in the one to sixteen age group than in the adult group. The reverse was true of the lower dorsal spine. Skipped infections of the vertebral bodies were not uncommon. In contradistinction to the commonly accepted belief that bone and joint tuberculosis is a monarticular disease, 35 per cent of the pediatric cases and 28 per cent of the adult cases showed involvement of more than one area. The greatest number of areas affected was seven, among the pediatric cases. In this series 42 per cent of the pediatric cases and 55 per cent of the adult cases showed some form of pulmonary tuberculosis. This high incidence is contrary to the view commonly held. Other important and frequently occurring complications were pleural effusions, genitourinary tuberculosis, tuberculous peritonitis, tuberculous meningitis and amyloidosis. A paravertebral abscess was demonstrated in 28 of the 57 spine cases or in 49.1 per cent in the pediatric group, and in 37 of the 52 spine cases or in 71.3 per cent in the adult group. The abscess may be the only roentgen evidence of underlying bone disease. Its extension is not dependent upon gravity alone. Calcareous material is frequently deposited in paravertebral abscesses of long duration. Skipped infection of vertebral bodies may be due to the extension of a paravertebral abscess in addition to multiple embolic foci. Paravertebral swellings occur in conditions of the spine other than tuberculosis. The vertebral body may be primarily involved in its anterior, central or posterior portions, in addition to its margins. The small parts of the vertebrae are infrequently involved and such involvement is usually secondary to disease in one of the above named areas. Marginal involvement occurs most frequently in adults and is usually associated with narrowing of the intervertebral disc. Pain is common, but collapse of the body is a late manifestation of the disease process. The central type of lesion is found chiefly in young children. Collapse of the body occurs early in the disease but pain and narrowing of the intervertebral space are later manifestations. Posterior involvement is more frequently associated with clinical evidence of cord involvement than lesions producing marked collapse of vertebral bodies with kyphosis and gibbus formation. In this type of involvement, as well as in the central and anterior form, the intervertebral space is not necessarily narrowed. Primary shaft tuberculosis is relatively uncommon in children, but involvement of the short tubular bones is frequent. Both are rare in adults. Shaft tuberculosis secondary to joint involvement is not infrequent. The roentgen appearance is not typical of tuberculosis alone. There is a resemblance to chronic nonspecific osteomyelitis with productive and destructive changes and an overlying periostitis. Tuberculous lesions of membranous bones usually appear as punched-out areas, and the diagnosis can be made with certainty only by biopsy or in conjunction with positive findings elsewhere. Punched-out lesions were observed in the shaft of long bones immediately adjacent to tuberculosis of the shoulder, knee, ankle and especially the elbow joint. So frequent was this finding that we consider it a valuable aid in diagnosis. Bilateral symmetrical lesions were observed and serve to indicate the haematogenous character of the involvement. Finally, bone and joint tuberculosis may resemble so many other osseous lesions that its diagnosis should not be attempted from the roentgenogram without a detailed knowledge of all the clinical facts pertaining to each case as an individual problem.—*A Statistical and Roentgen Analysis of Two Hundred Cases of Bone and Joint Tuberculosis, L. Nathanson & W. Cohen, Radiology, May, 1941, 36: 550.*—(*G. F. M.*)

Cystic Tuberculosis of Bones.—A case of multiple cystic tuberculosis of the bone is reported in an eighteen months old colored infant who displayed on X-ray examination a typical primary tuberculosis of the right lung. Lesions in the bones were most numerous in the extremities but the skull and a rib were involved as well.—*Multiple Cystic Tuberculosis*

of Bones, D. W. Martin & D. H. Fogel, Am. J. Dis. Child., February, 1941, 61: 322.—(M. B.)

Tuberculosis of Bones.—A study was made of the tuberculous orthopedic patients who entered the San Francisco Hospital, from January 1920 to July 1935. Of 4252 tuberculous patients, 160 or 3.76 per cent had tuberculous bone or joint lesions, which were usually secondary to some other tuberculous focus, most frequently in the lungs. Of these 160 patients, 118, or 73.7 per cent, had chronic pulmonary tuberculosis; 42, or 26.3 per cent, had no pulmonary involvement. Of patients with no pulmonary disease, the great majority had manifestations of tuberculosis elsewhere in bones, joints, skin etc.; in only 8 was one joint the sole focus of tuberculosis. Bone and joint tuberculosis affects more often the weight bearing joints. It is most prevalent in the second and third decades of life. The outcome is greatly influenced by the degree of lung involvement and is most serious when the lung disease is moderately or far advanced. Treatment of the orthopedic lesions should be secondary to the care of the pulmonary tuberculosis; where the pulmonary disease is far advanced, conservative measures alone are the method of choice. The prognosis is more serious in patients who have tubercle bacilli in the sputum, or who have a draining sinus or multiple abscesses or who have forms of tuberculosis other than pulmonary. One hundred and eighteen bone and joint lesions were treated conservatively: 63 were in patients who died, 17 were unimproved, 19 were improved and 19 were well. Of the 85 joints treated by surgery of any kind, 38 were in patients who died, 8 were unimproved, 23 were improved and 16 were well. Owing to the high mortality of orthopaedic tuberculosis when associated with pulmonary tuberculosis, emphasis must be placed on the necessity of complete examination, including chest X-ray films, of every case.—*An Analytical Study of Bone and Joint Lesions in Relation to Chronic Pulmonary Tuberculosis, E. Rosencranz, A. Piscitelli & F. Bost, J. Bone & Joint Surg., July, 1941, 23: 628.*—(*H. R. N.*)

Hypertension with Tuberculosis of Kidney.—The patient studied was a thirty-seven year old male who was known to have had tuberculous pleural effusion in childhood and who subsequently developed tuberculous epididymitis. Twelve years after that he suffered from frequent headaches, shortness of breath, nervousness and irritability. He also complained of pain in the region of the left kidney and upon admission to the hospital his blood pressure was found to be 210 systolic and 150 diastolic. Cystoscopy showed a normal right kidney and ureter but a functionless left kidney. Left nephrectomy was therefore performed and advanced tuberculosis of the kidney was found. Immediately after nephrectomy his blood pressure came down and at the time of his discharge from the hospital his systolic pressure was 130 and the diastolic 74. This relief of hypertension has persisted for more than a year, during which time the patient has been working and is apparently cured of all his complaints.—*Unilateral Renal Tuberculosis Associated with Hypertension, G. G. Richards, Ann. Int. Med., August, 1941, 15: 324.*—(*A. A. E.*)

Tuberculosis of Kidneys.—There is little in the medical literature of the past five years which has added much to our fundamental knowledge of renal tuberculosis. This paper is in the nature of a review of the data concerning diagnosis and treatment of this subject from the roentgenological point of view. Of 4,199 patients with complete records in Glen Lake Sanatorium, all having had examinations of their urine or their urogenital tracts, 4.1 per cent had a clinical or postmortem diagnosis of lesions of tuberculosis in one or both kidneys. During the invasion stage, renal tuberculosis, in the majority of instances, consists of the haematogenous implantation of bacilli in both kidneys, so that a complete urological examination must determine accurately the presence or absence of pathological changes in each. In all cases the urologist and roentgenologist must study and evaluate all data obtained from a complete urological examination before they offer a diagnosis. In doubtful cases repeated urological and roentgenological examinations must

be made. The plain roentgenogram of the kidney areas is of little or no value in the diagnosis of early lesions of renal tuberculosis. In 25 per cent of long-standing or advanced cases it may give valuable information for enlargement and irregularity of the kidney shadow, and shadows produced by calcification are common. Ten per cent of the patients who have tuberculous lesions of the bones or joints demonstrable by X-ray have concurrent tuberculous lesions in the kidneys. Excretory urography furnishes valuable information but one cannot state positively on the basis of an excretory urogram that a kidney is free of tuberculosis. About 40 per cent of kidneys whose pelves reveal no deformity on excretory urogram eliminate tubercle bacilli which may be found if the urinary sediment is stained or injected into guinea pigs. The authors employ the plain roentgenogram routinely and use the excretory urogram to supplement and not to replace retrograde pyelography. The importance of well filled bilateral pyelograms in the diagnosis of early lesions has not been correctly evaluated either by the urologists or roentgenologists. Pyelograms that reveal a normal outline with no filling defects exclude lesions of renal tuberculosis in 90 per cent of the cases. Serial pyelograms permit the determination of the progress of renal tuberculosis and the type of treatment. Deformities, such as parenchymal abscesses of the renal pelvis and parenchyma and the changes which may occur in their character may be visualized on films if the renal pelves are completely injected with shadow-casting solutions by the retrograde method. The presence and extent of sinus tracts occurring in the renal areas following surgical removal of a kidney may be visualized on a film if the tract is carefully filled with opaque suspension. When a focus of tuberculosis is discovered in the kidney, other foci should be sought, especially in the chest, bones and joints. Only when a correct diagnosis of the extent of the disease is made, can proper therapy be recommended.—*Roentgenology of Renal Tuberculosis, G. J. Thomas, T. L. Stebbins & S. T. Sandell, Radiology, June, 1941, 36: 676.*—(*G. F. M.*)

Meningitis.—Tuberculous meningitis, running a mild course and finally resulting in complete healing, is a clinical entity that has been demonstrated on the autopsy table. The clinical meningeal episode may be fleeting and may not recur, or it may occur several times; it may heal entirely, or it may give way to a classic meningitis due to endogenous or exogenous reinfection and not to a reactivation of the local process. Only painstaking and exhaustive examination will reveal the very scarce symptomatology and will exclude the various manifestations due to other causes. Meningeal symptoms occurring incidental to the course of chronic tuberculosis are really very indefinite and mild and a careful evaluation of the patient's subjective symptoms is very helpful to differentiate between a condition due to a meningeal lesion or to the general infection. Diagnosis may be based on the appearance of the usual symptoms of headache, vomiting and hiccough, occasionally intermittent, especially in the chronic forms of tuberculosis with scarce pulmonary symptoms; on spinal fluid under pressure, or positive for tubercle bacilli by any method, including animal inoculation; on concurrent appearance of tuberculids or choroiditis; on positive reaction to intracutaneous injection of spinal fluid; on the recurrence of headache following inoculation of a therapeutic dose of tuberculin. Anatomopathological findings may consist of simple hyperaemia or oedema of the meninges and of the brain, or of a gelatinous exudate, or of sclerotic meningeal inflammation. There is also found a moderate seeding of tubercles, limited to the basal pia, and at times a subsequent hydrocephalus, due to the obliteration of Magendie's foramen or of the aqueduct of Sylvius. This mild meningeal form may go on to healing by cicatrization, because it is mainly exudative; in contrast to a true tuberculous meningitis, with prevalence of miliary tubercles, which is beyond any hope of cure. Death has occasionally occurred in these milder forms, because of involvement of important vegetative centres, even when anatomical changes were meagre. Meagre anatomical changes may be explained as being the result of a slight bacterial invasion or by the existence of a state of relative immunity in a chronically

ill patient. It appears logical to differentiate between the classic tuberculous meningitis and a mild meningitis occurring in the course of chronic tuberculosis. The former has an anatomical basis prevailingly exudative or productive and widely distributed, with diffuse encephalitic phenomena, mainly in the vegetative nuclei, and due to haematogenous dissemination and is, except in rare instances, fatal. The latter is characterized by mild anatomical changes, occasionally exudative or productive, while the patient still maintains his allergic balance; it is curable.—*Meningiti e meningoencefaliti tubercolari discrete con frequente esito in guarigione, L. Riccitelli, Riv. di pat. e clin. d. tuberc., October, 1940, 14: 633.*—(*S. L.*)

Tuberculosis of Eyes.—The first description of tuberculous involvement of the eye was that of a uveitis by de Mussy in 1853. Since then involvement of the other portions of the eye has been reported. Very rarely primary ocular lesions, the result of direct inoculation, have been described. Usually the condition is consequent upon a primary focus in the chest or abdomen. Phlyctenular conjunctivitis belongs to the first period of Ranke; all other ocular lesions, to the second. It is not settled whether the lesions are the result of metastatic foci of infection, toxic effects from a remote focus, or allergic reactions. The response of iritis to desensitizing doses of tuberculin favors this last interpretation. Tuberculosis of the eye is uncommon, usually representing about 0.1 per cent of cases seen in an ophthalmological service. Only 2 per cent of cases of tuberculosis at the Chicago Municipal Sanatorium showed eye lesions. Most authors find that tuberculous ocular lesions are associated in a very small percentage of cases with pulmonary lesions, active or inactive. Twenty-seven patients with tuberculous ocular lesions were subjected to clinical and radiological study, with intradermal and serological tests for tuberculosis. About half the cases showed a moderately strong reaction to PPD, one quarter a strong reaction, and one quarter only a slight reaction. This suggests that most ocular lesions do not occur at an early stage of the postprimary period. On the average, the reactions of Besredka and Vernes gave low titres. Extrapulmonary lesions occurred in 6 cases—in one an erythema nodosum, in 5, bone or lymphatic involvement. In 11 cases some evidence of pulmonary disease was present, but in only 3 was it active. In 2 of the 3, the eye lesion led to the X-ray diagnosis of the lung lesion. The third was a recurrent keratitis beginning during pneumothorax therapy. In 16 of the 27 cases, not even a primary complex was demonstrated (even though active extrapulmonary lesions may have been present). In ocular tuberculosis, the portal of entry and the type of organism may be different from those found usually in pulmonary tuberculosis. This suggests the bovine bacillus which more frequently localizes outside the lungs.—*El estado del pulmón en las tuberculosis oculares, M. Celaya & F. Cerboni, Rev. argent. de tuberc., January–March, 1941, 7: 4.*—(*H. B. S.*)

Tuberculosis of Eyes.—Many cases of irido-cyclitis, scleritis and uveitis are caused by tuberculosis. The author believes that tuberculin therapy does much good and no harm and cites the work of several other authorities to prove it. Many cases of eye disease, even when proper hygienic measures are taken, begin to improve only after tuberculin injections are started. The Mantoux test is used in three intracutaneous injections of OT, starting with dilutions of 0.001 mg. and ending with 0.1 mg. Phenol control tests are also made and all injections may be made at one sitting. The reactions are then read in twenty-four and forty-eight hours. If negative, the author suggests a subcutaneous injection of 1 mg. OT in a hospital with careful temperature observations. Conditions in which the tests are made are: tuberculosis of the uveal tract, sclerosing keratitis, scleritis and episcleritis and recurrent vitreous and retinal haemorrhages. Old Tuberculin is used for treatment and is given subcutaneously in the deltoid region, starting with 0.2 cc. of a 1:100,000 then a 1:10,000 solution twice a week. The dosage is not increased if there is any reaction, local or general. If none is obtained the dosage is increased with each injection until 1 cc. of a 1:10 dilution is reached when treatments are given only once a month. Other

forms of tuberculin may be used but the author advises against treatment of exudative forms of tuberculosis with tuberculin of any type.—*Tuberculin as a Therapeutic Measure in Ophthalmology, R. G. C. Kelly, Canad. M. A. J., May, 1941, 44: 467.*—(*W. G. C. M.*)

Tuberculosis of Ear.—From 10 to 20 per cent of chronic ear infections are tuberculous. However, the condition is frequently unrecognized and is often considered to be a very rare disease. Aside from the very rare cases of primary disease, there are three routes by which tuberculosis involves the ear: (*1*) direct extension via the Eustachian tube; these patients usually have advanced pulmonary tuberculosis and a richly bacillary sputum. The ear disease may be looked upon as a late complication similar to the intestinal and laryngeal disease in these cases. The ear involvement comes on insidiously without pain and without fever. Frequently, the patient complains only of increasing deafness which is both of the conduction and nerve type. The impairment of hearing is marked, particularly when compared to the apparently slight involvement of the middle ear. This is due to the fact that the petrous pyramid is usually involved with resulting disease of the labyrinth. Vertigo is generally not present; this is a significant differential point, since pyogenic labyrinthitis usually produces severe vertigo in addition to deafness. Examination of the middle ear in most cases shows inflammation which is not characteristic of tuberculosis. Tubercle bacilli are not found in the ear discharges in the majority of the patients. In many cases, the disease remains torpid; a chronic ear discharge persists and the deafness becomes complete. In others, there is extensive necrotic bone involvement with various complications such as paralysis of the sixth and seventh nerves. General symptomatic treatment is indicated and radical therapy is useless and sometimes dangerous. (*2*) Haematogenous extension. There is often evidence of blood stream involvement elsewhere in the body. The mastoid is commonly involved in these patients. This disease is infrequent. The clinical picture is essentially one of bone disease rather than of middle ear involvement as in the first type. Severe pain is characteristic and may be present long before there is any evidence of disease of the ear drum. Surgery in these cases gives excellent results provided it is accompanied by adequate general measures. (*3*) Lymphatic extension. This is the most common type of ear tuberculosis and is frequently accompanied by secondary infection, making the diagnosis difficult without careful bacteriological studies. Generally, the ear is involved by extension from the lymphatic tissue of the nasopharynx. This type of disease is primarily found in infants. Generally, there is a preceding acute infection of the nose and throat in the course of grippe or measles. These illnesses are often accompanied by tuberculous anergy. An acute otitis media develops and a purulent discharge comes on. In contrast to the usual pyogenic infection, the discharge persists for weeks. The infant becomes anaemic, runs a low grade temperature and often cervical adenopathy appears. In such cases, tuberculosis must always be considered. The diagnosis is often missed and only becomes clear when another tuberculous manifestation, such as meningitis, supervenes. These patients do well with rest, heliotherapy and sanatorium care. When the disease is recognized early, the incidence of complications such as pulmonary tuberculosis and meningitis is decreased. Two illustrative case records are cited.—*Considérations sur la tuberculose de l'oreille, G.-Léo Côté, Laval méd., December, 1940, 5: 452.*—(*H. R. N.*)

Tuberculous Empyema.—Seventeen patients with tuberculous empyema were treated and the results are reported. The indications for treatment are as follows: (*1*) If the underlying lung is tuberculous and requires thoracoplasty for itself, then the empyema (and the lung) should be treated by thoracoplasty. The operation is divided into five or six stages if necessary. Full lengths of ribs, beginning from above downward and including the seventh rib, are removed extrapleurally. The periosteum of each rib is treated with 10 per cent formalin throughout its entire length instead of only the posterior portion as is the custom. (*2*) If the underlying lung is not diseased or if it is tuberculous and does not for itself require thoracoplasty, the tuberculous

empyema should not be treated by thoracoplasty unless aspiration and air replacement under negative pressure fail. X-ray examination is made twice monthly and should any four consecutive films show no appreciable decrease in the pleural cavity, thoracoplasty is done immediately. (3) Thoracotomy should only be used when mixed infection exists with resultant toxaemia and should then be done immediately. Of the 17 patients treated, 4 were treated with aspiration alone, 10 with thoracoplasty and 3 are still under treatment. Eight of the thoracoplasty patients have obliterated cavities and completely healed wounds. There was one thoracoplasty death and no mortality in the aspiration group.—*Treatment of Tuberculous Empyema, G. Samuel, Indian M. Gaz., October, 1940, 75: 594.*—(*A. B. C.*)

Tuberculosis of Cervical Lymph Nodes.—Two hundred and thirty cases of tuberculous cervical lymphoma have been investigated with respect to healing results and complications six to ten years after treatment. One hundred and five cases were treated surgically and 125 radiologically. Simple solitary lymphomata (comprising about 20 per cent of the material) seem to react equally favorably to both surgical and radiological treatment. Individualized treatment is, therefore, advisable. Lymphomata with periadenitis and liquefaction, but not with fistulae and scrofuloderma (about 70 per cent) react somewhat more favorably to surgical treatment than to radiotherapy. Surgical treatment is indicated, if technically possible; in more advanced cases radiological treatment should be given primarily, followed by surgical treatment, wherever possible. Lymphomata with fistulae or scrofuloderma (10 per cent) respond most satisfactorily to radiological treatment. This should be the routine treatment in such cases.—*The Treatment of Tuberculous Cervical Lymphoma: Late Results in 230 Cases Treated Partly Surgically, Partly Radiologically, H. B. Wulff, Acta chir. Scandinav., 1941, Fasc. IV, 84: 343.*—(*R. K.*)

Contact-therapy of Lupus.—The difficulty of treating lupus vulgaris is well known. After the use of radiation or radium therapy, many cases have undergone malignant change. The author advocates the use of contact-therapy to cure the lesion. An initial dose of 2000 r is given to control the malignancy, followed by the application of repeated doses of 200 r. This clears up the tuberculous lesion and causes scar formation. The trauma to the skin is not excessive with this plan of treatment. Two successfully treated cases are reported.—*La contactthérapie du lupus-carcinome, O. Mengis, Schweiz. med. Wchnschr., May 10, 1941, 71: 624.*—(*H. M.*)

Treatment of Lupus.—Tuberculous lupus, or lupus vulgaris, is one of the most frequent forms of cutaneous tuberculosis. The characteristic lesion is a tubercle involving all layers of the skin. The author advises curettage of the lesion followed by electrocauterization. This is followed by warm compresses of boric acid or physiological serum for forty-eight hours; after this, a cicatrizing pomade is used for four to five days alternating this with the warm compresses. For the next two to three weeks, the use of the pomade alone is continued. The author has obtained cure in many cases. The final scar is supple and not very disfiguring. Early untreated cases show the best reponse, while older cases and those which have previously been treated by other methods may require repeated cauterization.—*Le traitement externe du lupus tuberculeux par curettage et cautérisation avec l'électrocautère à boule, J. Golay, Schweiz. med. Wchnschr., May 10, 1941, 71: 611.*—(*H. M.*)

Treatment of Lupus.—Three patients suffering from lupus vulgaris were treated with injections of gold (Solganal-B oleosum) and of blood from a healed case of bone tuberculosis. Solganal-B oleosum was administered every fifth day in increasing doses starting with 0.01 g. After some gold injections, intramuscular injections of blood were given, also every fifth day between the gold injections, in increasing quantities of 5, 10, 15, 20 cc. In two patients complete healing with good cosmetic results was achieved; the third patient did not respond to the treatment.—*Heilerfolge bei Lupus vulgaris mit spezifischem Rekonvaleszentenblut*

und Goldbehandlung, P. v. Engel, Wien. klin. Wchnschr., February 28, 1941, 54: 179.—(G. C. L.)

Erythema Nodosum.—More than 800 children with erythema nodosum were observed. Over 90 per cent of them reacted to tuberculin, and in more than 50 per cent tubercle bacilli were found in the gastric juice. Erythema nodosum is, therefore, a manifestation of tuberculosis in the majority of cases; however, it may also occur without any relation to tuberculosis. In 6 cases of erythema nodosum, histological examinations were done; in two of these acid-fast granules were seen which were believed to be identical with the granules as shown by Lewkowicz in his publications. An explanation for these findings cannot be given. The opinion that erythema nodosum is an allergic phenomenon is to be maintained.—*Bemerkungen zur Pathogenese des Erythema nodosum, E. Koenigsberger, Acta tuberc. Scandinav., 1941, 15: 154.—(G. C. L.)*

Tuberculosis of Adrenals.—Tuberculosis of the adrenals is always of haematogenous origin. It is found in combination with pulmonary tuberculosis which is usually inactive or healed. Genitourinary tuberculosis or bone tuberculosis may be present. Chronic adrenal insufficiency used to be a fatal disease until the discovery of adrenal cortical extract altered its outlook. Anatomically, it may be part of a generalized miliary tuberculosis in which the lesions consist of many miliary tubercules. There may be larger caseous foci, or a fibrocaseous form, with calcification and bone formation may be present. The latter two forms of disease lead to the symptom complex of Addison's disease. Chronic adrenal insufficiency is characterized by pigmentation of the skin, asthenia, anorexia, weight loss, hypotension, gastrointestinal symptoms, achylia, hypoglycaemia and a high potassium level of the blood. Patients are very susceptible to infections, and otherwise harmless infections may have a fatal outcome by precipitating a crisis. The susceptibility to infections may be an expression of the depletion of the blood vitamin C in this disease. Treatment consists of a high sodium, low potassium diet, vitamin C and adrenal cortical extract when necessary.—*Nebennierentuberkulose als Todesursache, W. Berblinger, Schweiz. med. Wchnschr., April 6, 1940, 70: 293.—(H. M.)*

Key to Abstractors

A. A. E.: Adrian A. Ehler, Albany, New York.
A. B. C.: Adele B. Cohn, China.
E. H. R.: Eli H. Rubin, New York City.
G. C. L.: G. C. Leiner, New York City.
G. F. M.: Gertrude F. Mitchell, Detroit, Michigan.
H. B. S.: Howard B. Shookhoff, New York City.
H. L. I.: Harold L. Israel, Philadelphia, Pennsylvania.
H. M.: Henriette Marcus, New York City.
H. R. N.: H. R. Nayer, New York City.
J. D. A.: Joseph D. Aronson, Philadelphia, Pennsylvania.
M. B.: Miriam Brailey, Baltimore, Maryland.
R. K.: Robert Klopstock, Boston, Massachusetts.
S. L.: Salvatore Lojacono, Howell, Michigan.
S. T.: Sidney Trubowitz, New York City.
W. G. C. M.: W. G. C. Munroe, Saranac Lake, New York.
W. H. M.: W. H. Merrit, New York City.